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Assessing the Relationship Between Work-Family Conflict and Smoking

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Abstract

Objectives—To examine the relationship between smoking and work-family conflict among a sample of New England long-term care facility workers.

Methods—Data were collected using in-person, structured interviews from workers in four extended care facilities.

Results—There was a strong association between smoking likelihood and work-family conflict. Workers who experienced both stress at home from work issues (i.e., work to home conflict) and stress and work from personal issues (i.e., home to work conflict) had 3.1 times higher odds of smoking compared to those who did not experience these types of conflict. Workers who experienced home to work conflict had an odds of 2.3 compared to those who did not experience this type of conflict, and workers who experienced work to home conflict had an odds of 1.6 compared to workers who did not experience this type of conflict.

Discussion—The results of this study indicate that there is a robust relationship between work-family conflict and smoking, but that this relationship is dependent upon the total amount of conflict experienced and the direction of the conflict.

INTRODUCTION

Tobacco use is the foremost cause of preventable death and illness in the United States. Tobacco use, primarily in the form of cigarette smoking, is responsible for 1 in 5 deaths, or about 440,000 Americans every year,[1] and for about 5 million people worldwide.[2] In addition to shortening human lives, tobacco also places a significant economic burden on society. Cigarette smoking is not distributed randomly among the population but is associated with social and economic disadvantage and stress.[3] Smoking is highest in lower SES groups and increasingly occurs in areas marked by low income, limited services, and chronic unemployment.[4, 5, 6, 7] In addition, research on the relationship between working

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conditions and smoking has been the focus of public health research, which has demonstrated that smoking and occupation are linked and that job stress may be associated with increased levels of smoking.[8, 9, 10, 11] While both the social environment and work-based factors have been demonstrated to be influential in determining tobacco use, there has been little attention to date paid to smoking in relation to work-family conflict.

"Work-family conflict" refers to the expectations, demands, skills, or knowledge associated with one domain (e.g., work) affecting the other domain (e.g., family); with the term "conflict" implying that the two domains compete for the individual's time and energy in a negative interaction.[12] There are well-established links between work-family conflict and health outcomes, including depression and general well-being,[13, 14, 15] and the research has shown that the direction of the conflict (i.e., work interfering with family versus family interfering with work) is an important distinction to make when studying work-family conflict.[12] In addition to health outcomes, researchers are investigating links between work-family conflict and health behaviors, such as substance use and diet.[16,17] Work-family conflict has been found to be associated with alcohol consumption among diverse groups[18, 19, 20] This association suggests the need to examine the relationship between work-family conflict and tobacco use, another substance believed to relieve stress.[21, 22]

Finally, much of the work performed by workers in long-term care facilities is both physically and emotionally demanding, provides relatively low wages, and is likely to be associated with adverse health consequences.[23, 24, 25] These characteristics make these workers important to consider when investigating the links between working conditions, work-family conflict and health.

Purpose of study

This paper examines the relationship between smoking and work-family conflict among workers in four New England long-term care facilities. We assess both the direction of work-family conflict (i.e., work-to-home versus home-to-work) and the effects of overall conflict (i.e., experiencing both forms of conflict), as we hypothesized that experiencing conflict in both directions may influence smoking likelihood more than experiencing conflict in one direction alone. We also examine the contributions of work and home factors as potential confounders since each may be separately associated with both smoking and work-family conflict.

METHODS

Sample

The cross-sectional data examined in this study were collected in four extended care facilities located in the Boston Metro area. This research was part of a larger study that examined how workplace policies, practices, and attitudes influence the cardiovascular health of employees. This setting was chosen because many employees of extended care facilities earn lower wages, are racially and ethnically diverse, and experience high levels of job strain.[26, 27] In-person, structured interviews were conducted between September 2006 and July 2007. The interviews lasted about forty minutes, were performed by trained research assistants during the employee's work shift, and were conducted in English, Spanish, and Haitian Creole. As an incentive, all participants were given debit cards. The questionnaire contained items regarding employee characteristics, their experiences with workplace policies and practices, and health status. To recruit participants, an introductory letter was distributed to all eligible employees (i.e., those who speak English, Spanish, or Haitian Creole) inviting them to participate and giving them the opportunity to opt out if they did not wish to participate. After the opt-out period, study staff worked with department

managers to schedule appointments for the interviewer-administered questionnaire. Four hundred fifty-two employees out of the 590 that were contacted completed the questionnaire, for a response rate of 76.6%. The study was approved by the Institutional Review Board at the Dana Farber Cancer Institute, Boston, MA.

Measures

Outcome—Smoking status was assessed with the question "Do you smoke cigarettes every day, some days, or not at all?" This three-option response was dichotomized into yes or no by combining the "every day" and "some days" responses into "yes" and "not at all" into "no." We chose to dichotomize this variable because we were interested in smoking status and, for this study, less concerned about smoking intensity.

Exposures—Work-family conflict was assessed with the following statements: "In the last month, I was preoccupied with my work while I was at home." (work-to-home conflict) and "In the last month, I was preoccupied with personal responsibilities while I was at work." (home-to-work conflict) Both items were adapted from standard measures.[28] The response categories were: often, sometimes, rarely, and never. In the interest of easing interpretation of results, both variables were recoded into dichotomous variables by combining the "sometimes" and "often" responses into "yes" and the "rarely" and "never" responses into "no." These cut-points were chosen based upon the distribution of responses.

To assess the effect of bi-directional work-family conflict (i.e., experiencing both home-to-work and work-to-home conflict), a third variable was created out of the two directional work-family conflict variables. This variable had three possible response categories. Participants who reported experiencing either type of conflict rarely or never were coded as having "no conflict at all", participants who reported experiencing one type of conflict often or sometimes, but the other type of conflict rarely or never were coded as experiencing "uni-directional conflict", and participants who reported experiencing both types of conflict often or sometimes were coded as experiencing "bi-directional conflict". These cut-points were chosen because we were interested in investigating the relationship of work-family conflict, either in both directions or regardless of direction, to tobacco use.

Confounders—Individual characteristics that were assessed include: gender, age, race/ethnicity, nativity, level of education, annual household income, and alcohol consumption. Standard measures were used to assess gender, age, and race/ethnicity. Race/ethnicity was transformed into a dichotomous variable that represented white race/ethnicity versus all other race/ethnicity categories. Nativity was assessed with the question: "In what country were you born?" Responses for any country other than the United States were coded as "foreign born" and those born inside the US were coded as "native born". Level of education was assessed with the question, "How much schooling have you had?" The response categories were combined into a dichotomous variable: four-year college graduate and graduate degree versus those with less education. To assess income, respondents were asked about their yearly household income from all sources. Response categories were collapsed into the following 4 categories: <$30,000, $30,000–$49,999, $50,000–$69,999, and $70,000 or more. To assess alcohol consumption, participants were asked the average number of days they had alcohol and, on those days, the average number of drinks they consumed. Responses were combined to reflect average number of alcoholic drinks per day.

The following workplace factors were assessed: job control/demand attributes, shift worked, job flexibility, total hours worked per week, and occupation. Control/demand job attributes were assessed with a 12-item questionnaire.[29] These items were combined into a categorical variable that represented all possible combinations of control (high vs. low) and job demand

(high vs. low) to create the following categories: 1) low strain (high control, low demand), 2) high strain (low control, high demand), 3) passive (low control, low demand), and 4) active (high control, high demand). Total hours worked per week was assessed by asking participants how many hours they worked per week. To assess occupation, participants were asked their job title or occupation, this response was collapsed into a dichotomous variable that divided workers who provided direct patient care from those that did not. Job flexibility was assessed by 1) asking participants about the ease of taking time off, with both short notice and with more time, and 2) whether or not they were able to choose their start and quit times. Responses were dichotomized into yes/no categories. Finally, participants were asked to identify the shift they usually work, response categories were a) Day (7am–3pm), b) Evening (3pm–11pm), and c) Night (11pm–7am).

The following home/family factors were assessed: whether or not the participant was married or living with a partner, the number of people that were supported by that individual's income, and how many children 18 or younger were living at home. To assess marital status and number of children living at home, participants were asked, first, how many people lived with them, and, second, to give specific information about each household member. This information was summarized into a) marital status/living with a partner, and b) number of children living at home. To assess the number supported by the respondent's income, each participant was asked, how many people are currently supported by their income. Responses to this item were grouped into the following categories: 1 person, 2 people, and 3 or more people.

Analysis—To investigate the association between work-family conflict and smoking likelihood, we built three separate logistic regression models, one model for each of the three work-family conflict variables. The reference category for home-to-work conflict was “no home-to-work conflict”, the reference category for work-to-home conflict was “no work-to-home conflict”, and the reference category for overall conflict was “no conflict at all” (with uni-directional conflict and bi-directional conflict as two categories that were compared to the reference category). We chose to create three separate models (one for work-to-home conflict, one for home-to-work conflict, and another for overall conflict) because, based upon the work-family conflict literature, the direction of the conflict is important and is almost always considered separately.[12, 30] The models that consider home-to-work conflict and work-to-home conflict separately are based upon this previous work. In addition to these first two models, we decided to run a third model that examined the effect of overall conflict on smoking behavior, as we wanted to investigate the possibility that those who were most affected by work-family conflict were those who experienced it in both directions (i.e., work-to-home and home-to-work). This variable was created with three levels (no conflict at all, uni-directional conflict, and bi-directional conflict) in order to have three mutually exclusive categories.

The following variables were considered as potential confounders in the relationship between smoking and work-family conflict: age, education, gender, nativity, race/ethnicity, alcohol use, marital status, number of children, annual household income, number of people supported by income, Karasek job control/demand attributes, occupation, job flexibility, hours worked per week, and work shift. If inclusion of that variable modified the beta coefficient by more than 5%, it was included as a covariate in the model. Thus, the following variables were included as covariates in all models: education, nativity, race/ethnicity, number of children, number supported by income, Karasek job control/demand attributes, and work shift. Further, all models were adjusted for the fixed effect of the work site by including three `dummy' variables to represent the four work sites in each model (work site refers to the specific extended care facility that the employee worked at).

RESULTS

A total of 439 subjects were included in the analysis. Participants were mostly female (82.5%) and older, as about half (49.7%) were between 40 and 64 years old (see Table 1). The sample was racially/ethnically diverse, as 35.5% identified as non-Hispanic black, 42.4% identified as non-Hispanic white, 14.6% identified as another non-Hispanic race, and 7.5% identified as Hispanic or Latino. Further, there was diversity in national origin, as more than half of the sample (55.1%) indicated that they were foreign-born. About a third (29.4%) of the sample indicated that they had obtained a High School/GED education, 39.6% had attended some college, and 15.7% had earned a college degree or graduate degree.

The prevalence of smoking was 19.3% (86/439) in this sample of nursing home workers. Among those who smoked 23.3% reported experiencing neither work-to-family nor home-to-work conflict, 43% reported that they experience conflict in one direction (i.e., either work-to-home or home-to-work) but not in both directions, and 33.7% reported experiencing conflict sometimes or often in both directions. Among those who smoked 65.1% worried about personal matters while at work (i.e. home-to-work conflict), and 45.3% worried about work while at home (i.e., work-to-home conflict).

The unadjusted relationship between work-family conflict and smoking likelihood was assessed first, then three separate multivariate logistic regression models were created to further investigate the relationship. Each model adjusted for the effects of education, nativity, and race/ethnicity, number of children, number supported by income, job control and demand, work shift, and worksite.

The odds of smoking for those who reported experiencing only one type of conflict was 1.54 (95% CI, 0.85–2.78) compared no conflict at all, and the odds of smoking for those who reported experiencing both types of conflict was 2.11 (95% CI, 1.12–3.97) compared to no conflict at all. The odds of smoking for participants who reported experiencing home-to-work conflict, compared to those who reported no such conflict, was 1.90 (95% CI, 1.16–3.10). The odds of smoking for those who reported work-to-home conflict, compared those who reported no such conflict was 1.26 (95% CI, 0.79–2.03).

The first logistic regression model that controlled for all relevant confounders assessed the relationship between the 3-level directional work-family conflict variable and smoking likelihood (see Table 2). For participants who reported both types of conflict, the odds of smoking was 3.1 compared to participants who experienced no conflict at all (95% CI: 1.48–6.56). For participants who experienced either work-to-home conflict or home-to-work conflict, but not both, the odds of smoking was 1.46 compared to no conflict at all (95% CI: 0.75–2.85).

The second logistic regression model assessed the relationship between home-to-work conflict (i.e., feeling preoccupied with personal responsibilities while at work) and smoking likelihood, controlling for all relevant confounders. The results of this model indicated that, on average, for participants who experienced home-to-work conflict, the odds of smoking was 2.3 compared to participants who reported no such conflict (95% CI: 1.31–4.10).

The final model assessed the relationship between work-to-home conflict (i.e., feeling preoccupied with work while at home) and smoking likelihood. This model indicated that, on average, for participants who experienced work-to-home conflict, the odds of smoking was 1.55 compared to those who reported no such conflict (95% CI: 0.89–2.69).

DISCUSSION

The purpose of this study was to investigate the relationship between work-family conflict and smoking among a sample of nursing home workers. We found that work-family conflict does significantly contribute to smoking likelihood and that when this conflict is experienced in both directions (i.e., being preoccupied with personal matters while at work and preoccupied with work while at home), the influence on smoking is the greatest. This finding indicates a possible gradient. Such that, when work-family conflict is experienced in both directions (i.e., from home-to-work and from work-to-home), it increases the likelihood of smoking more than experiencing one type of conflict alone.

When each direction of conflict was examined separately, we found that conflict has differential effects on smoking likelihood depending on the direction of the conflict. We discovered a robust relationship between home-to-work conflict and smoking likelihood, as participants who were preoccupied with personal matters while at work were significantly more likely to smoke, but that the relationship between smoking and work-to-home conflict (i.e., being preoccupied with work while at home) was much weaker. This finding highlights the importance of directionality in the smoking/work-family conflict relationship. Most research that deals with the work-family interface addresses the bi-directional nature of conflict by regarding work-to-home conflict as separate and distinct from home-to-work conflict, and generally considers work-to-home conflict and home-to-work conflict as two theoretically separate and distinct concepts.[12] Our findings highlight the importance of this previous work, as the strength and significance of the relationship between work-family conflict and smoking depends on the direction of the conflict. Our finding that home-to-work conflict influences smoking but not work-to-home conflict may perhaps be explained by the psychological precedence of personal and family life over work life, as the greater emotional engagement of home and family may make it a more powerful contributor to coping behaviors such as smoking.[12] Further, although there has been little research that has investigated the relationship between work-family conflict and smoking, the single study that examined this relationship reported results that were similar to the findings of the present study, finding that home-to-work, but not work-to-home, conflict was associated with smoking.[17]

As there is a literature that reports an association between smoking and workplace factors, including policies such as smoking bans,[5, 6, 7, 31] another important aim of this study was to, as exhaustively as possible, control for home and workplace factors that independently predict smoking behavior. This strategy was employed to lessen the possibility that work or home factors alone account for the association between work family conflict and smoking. Further, while we did not collect data on worksite-level tobacco policies, because we were able to adjust for the effect of belonging to a particular worksite, the effect that workplace smoking bans and other worksite-wide policies would have on our results is negligible. We found that after controlling for a wide array of workplace factors and home factors, the relationship between work-family conflict and smoking did not lessen.

A key strength of this study is the ability to look at the relationship between work-family conflict and tobacco use, as this important topic has received little attention in either the public health or the sociology literatures. Other strengths of our study include a high response rate, the inclusion of a very diverse group of predominantly low-wage workers, and a clear gradient in the results. A limitation of this research is its cross-sectional design, and because there is no time component in the design, it is impossible to attribute a causal relationship to the associations between work-family conflict and smoking. It is possible that smoking is causing the work-family conflict. The economic burden and health consequences of smoking can contribute to increased stress at home, as tobacco use can significantly affect

family budgets, due to the cost of cigarettes and the increased cost of healthcare that result from tobacco use.[2] Second, it is possible that those who recently quit smoking would report more work-family conflict due to the recent elimination of an important coping mechanism.[32] Third, the smoking measure that was available in the dataset and used in this study, while brief, was not the most well-validated measure for self-reported smoking available.[33] Finally, we may not have measured, and therefore controlled for, all relevant confounders. While much of the varied dimensions of work life were measured and accounted for, the complexities of home life may not have been sufficiently represented. Other aspects of home life that have been demonstrated important in predicting tobacco use that were not present in this study, include: attitudes towards smoking, communication within the household, partner support, household smoking bans, presence of other smokers in the household and emotional attachments among family members.[34, 35, 36] Finally, it is possible that there are innate psychological or personality factors or childhood experiences that contribute to susceptibility to both work-family conflict and smoking.

Tobacco-control policies have heavily influenced smoking rates in the US. The findings of this study show a relationship between smoking and work-family conflict and identifies a possibly fruitful area for tobacco intervention and control as well as workplace policies related to reducing work-family conflict. However, because there is very little research on this topic, and the research that has been conducted uses small samples and cross-sectional designs, the next step in the smoking/work-family conflict link is replication in studies with larger samples and study-designs that contain a time component. Should the findings presented in this study be replicated, there is potential for workplace policies and programs to alleviate work-family conflict and by doing so decrease smoking rates among their workers.

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Table 1

Participant Characteristics by Exposure Category

	Overall (n=439)	No Conflict (n=142)		Uni-directional Conflict (n=184)		Bi-directional Conflict (n=113)	
	n	n	%	n	%	n	%
Smokers	86	20	23.3%	37	43.0%	29	33.7%
Gender							
Male	77	29	37.7%	25	32.5%	23	29.9%
Female	362	113	31.2%	159	43.9%	90	24.9%
Age							
18–25 yrs	65	24	36.9%	32	49.2%	9	13.9%
26–39 yrs	137	38	27.7%	66	48.2%	33	24.1%
40–64 yrs	218	72	33.0%	79	36.2%	67	30.7%
65+	18	8	44.4%	6	33.3%	4	22.2%
Race/ethncity							
Non-Hispanic black	156	49	31.4%	55	35.3%	52	33.3%
Non-Hispanic white	186	57	30.6%	87	46.8%	42	22.6%
Non-Hispanic other	64	26	40.6%	26	40.6%	12	18.8%
Hispanic	33	10	30.3%	16	48.5%	7	21.2%
Nativity							
Foreign-born	242	82	33.9%	93	38.4%	67	27.7%
US-born	197	60	30.5%	91	46.2%	46	23.4%
Education							
< High School	67	24	35.8%	22	32.8%	21	31.3%
High School/GED	129	44	34.1%	57	44.2%	28	21.7%
Some College	174	48	27.6%	77	44.3%	49	28.2%
College Grad/Graduate degree	69	26	37.7%	28	40.6%	15	21.7%
Annual Household Income							
< $30,000	92	27	29.4%	36	39.1%	29	31.5%
$30,000–$49,000	107	36	33.6%	47	43.9%	24	22.4%
$50,000–369,000	73	28	38.4%	32	43.8%	13	17.8%
$70,000+	122	37	30.3%	53	43.4%	32	26.2%
Married	247	81	32.8%	99	40.1%	67	27.1%
Number supported by income							
1 person	44	18	40.9%	16	36.4%	10	22.7%
2 people	91	32	35.2%	41	45.1%	18	19.8%
3 or more people	304	92	30.3%	127	41.8%	85	28.0%
Children 18 or younger							

	Overall (n=439)	No Conflict (n=142)		Uni-directional Conflict (n=184)		Bi-directional Conflict (n=113)	
	n	n	%	n	%	n	%
0	211	78	37.0%	86	40.8%	47	22.3%
1	111	25	22.5%	56	50.5%	30	27.0%
2	88	33	37.5%	31	35.2%	24	27.3%
3+	29	6	20.7%	11	37.9%	12	41.4%
Job Control/Demand Category							
Low Strain	136	50	36.8%	57	41.9%	29	21.3%
High Strain	111	28	25.2%	52	46.9%	31	27.9%
Passive	85	29	34.1%	32	37.7%	24	28.2%
Active	107	35	32.7%	43	40.2%	29	27.1%
Shift-Worked							
Day	270	90	33.3%	112	41.5%	68	25.2%
Evening	101	27	26.7%	49	48.5%	25	24.8%
Night	68	25	36.8%	23	33.8%	20	29.4%

Table 2

Logistic Regression: Odds Ratios (OR) and 95% Confidence Intervals for Smoking Likelihood

Experiences Uni- or Bi-Directional‡ Work-Family Conflict		Experiences Home to Work Conflict		Experiences Work to Home Conflict	
(n=439)	**OR (95% CI)**	**(n=439)**	**OR (95% CI)**	**(n=439)**	**OR (95% CI)**
No Conflict at all (ref.)	1.00	No (ref.)	1.00	No (ref.)	1.00
Uni-directional Conflict	1.46 (0.75–2.85)	Yes	2.32 (1.31–4.10)	Yes	1.55 (0.89–2.69)
Bi-directional Conflict	3.11 (1.48–6.56)				

All models include the following covariates: education, nativity, race/ethnicity, number of children, number supported by income, Karasek job control/demand attributes, work shift, and work site.

‡The term `uni-directional conflict' designates the category of participants who experience either work-to-home conflict or home-to-work conflict, but not both. The term `bi-directional conflict' designates the category of participants who experience both work-to-home conflict and home-to-work conflict.